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PATR, JUSTIN				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary

Application No.

10/671,876

Applicant(s)

SADIQ ET AL.

Examiner

JUSTIN M. PATS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-18, 20, 21, 25, 26, 31-34, 36, 37, 39-45 and 47-54 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 15-18, 20, 21, 25, 26, 31-34, 36, 37, 39-45 and 47-54 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Notice to Applicant

1. The following is a Final office action. In response to Examiner's communication of 6/10/09, Applicant, on 10/9/09, amended claims 15, 31, and 41. Applicant also cancelled claims 19, 22-24, 35, 38, and 46 and added claims 49-54. Claims 15-18, 21-21, 25-26, 31-34, 36-37, 39-45, 47-54 are pending in this application and have been rejected below.

Response to Amendment

2. The rejection of claims 15–22, 24–26 and 31–48 under 35 U.S.C. 112 is hereby removed in light of Applicant's amendments and remarks of 10/9/09.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 15–18, 20–21, 25–26, 31–34, 36–37, 39–45, 47–49, 51, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shazia Sadiq et al., "Pockets of Flexibility in Workflow Specification," Proceedings of the 20th International Conference on Conceptual Modeling, Lecture Notes in Computer Science, 2224, pp. 513-526 (H.S. Kunii, et al., eds. 2001) in view of Ribeiro et al., *Security Policy Consistency*, IST/INESC, Lisbon, Portugal, 30 Jun 2000, pg. 1–13 [hereinafter Ribeiro].

6. As per claims 15–18, 20–21, 25–26, 31–34, 36–37, 39–45, 47–48, Sadiq discloses all of the limitations as pointed out in the previous Office action mailed July 3, 2008 (not contested by Applicant), including new limitation of validating the tasks and constraints without violating any of the constraints in each of the minimal specifications of the constraints (pg. 520, “Valid instance templates must be ensured through the build rules captured within the build activities. Building may be constrained by several factors, including at least the data relating to that instance, the stage of execution of the instance, temporal constraints, and the business rules of the particular application for which the template is being defined. For example, in education, it will be constrained by the progress of the student, such that at any given stage of the study process, the student can build the template from a specified set of study activities. A student, for example, cannot take up a study activity whose prerequisites have not been met.”), but fails to explicitly disclose:

simplifying a specification of the constraints for each constraint corresponding to a constraint type of a plurality of constraint type; for each constraint based on resolving intra-constraint conflicts for each constraint type to provide a minimal specification for each constraint of the constraint type, simplifying the specification of the constraints being based on a redundancy or a transitivity within the constraint type; resolve inter-constraint conflicts between the constraint types; and

an apparatus comprising a computer readable medium, storage of data in the computer readable medium, and reading therefrom so as to cause the apparatus to execute the steps of the claimed invention.

As per the first limitation, Ribeiro in the analogous art of constraint management teaches simplifying a specification of the constraints for each constraint corresponding to a constraint type of a plurality of constraint type; for each constraint based on resolving intra-constraint conflicts for each constraint type to provide a minimal specification for each constraint of the constraint type, simplifying the specification of the constraints being based on a redundancy or a transitivity within the constraint type; resolve inter-constraint conflicts between the constraint types (Ribeiro, pg. 2, **2 Constraint Handling Rules**, discussing simplification rule implementation process; *see also* Fig. 2; with respect to redundancy or transitivity within the constraint type, *see* Ribeiro, pg. 4, “These rules can be divided in two groups: the first is composed of simplification rules describing redundancies and conflicts between timed equality constraints and other constraints; the second consists of propagation rules describing the transitivity properties between timed equality constraints and other constraints.”). As per the second limitation, Ribeiro also teaches this (pg. 3, “PCV is composed by five layers (Figure 2). The first layer is the CHR symbolic solver engine, which is the only layer not comprised of CHR rules.”; Fig. 2, 1st layer, solver engine; pg. 9, “These constraints can then be further simplified by the rule of the consistency engine.”; pg. 6, “The properties of each external entity depends heavily on the platform (operating system, workflow engine) implementing it.”; pg. 5, “Without further assumptions the program composed by the rules in Figure 5 . . .”; pg. 5, “The CHR solver verifies the constraint store, before introducing new constraints, to prevent the existence of multiple copies of the same constraint in the constraint store. Membership constraints are never removed from the constraint store. Meet constraints cannot be added to the constraint store, by any program’s rule.”).

It would have been obvious to one of ordinary skill in the art to modify Sadiq to include the teaching of Ribeiro because the claimed invention is merely a combination of old elements, and in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. Furthermore, Ribeiro's teachings provide a more robust analysis that is more effective by being able to handle a greater number of constraint scenarios. Additionally, the hardware components and computer program aspect of Ribeiro provide faster processing and therefore make the user more productive.

7. As per claims 49, 51, and 53, Sadiq does not explicitly teach wherein the constraints include at least one of an inclusion constraint and an exclusion constraint, the inclusion constraint identifying a dependency between task subsets such that the inclusion of a particular task subset within the workflow requires the inclusion of another particular task subset within the workflow, the exclusion constraint identifying a dependency between task subsets such that the inclusion of a particular task subset within the a workflow requires the exclusion of another particular task subset within the workflow. However, Ribeiro teaches this limitation in the analogous art of constraint management (Ribeiro, pg. 7, 5.2 Security Constraint Handler, Figure 9, which lists logical constraints of both exclusive disjunction and inclusive disjunction, indicated in the Figure by associate symbol notation).

It would have been obvious to one of ordinary skill in the art to modify Sadiq to include the teaching of Ribeiro because the claimed invention is merely a combination of old elements, and in the combination each element merely would have performed the same function as it did

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separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. Furthermore, Ribeiro's teachings provide a more robust analysis that is more effective by being able to handle a greater number of constraint scenarios.

8. Claims 50, 52, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shazia Sadiq et al., "Pockets of Flexibility in Workflow Specification," Proceedings of the 20th International Conference on Conceptual Modeling, Lecture Notes in Computer Science, 2224, pp. 513-526 (H.S. Kunii, et al., eds. 2001) in view of Ribeiro et al., *Security Policy Consistency*, IST/INESC, Lisbon, Portugal, 30 Jun 2000, pg. 1-13 [hereinafter Ribeiro] further in view of Mangan and Sadiq, On Building Workflow Models for Flexible Processes, The Thirteenth Australasian Database Conference ADC2002, 28 January 2002, pg. 1-7 [hereinafter Mangan] (see PTO-892, 7/3/08, ref. U).

9. As per claims 50, 52, and 54, Sadiq in view of Ribeiro does not explicitly teach wherein the constraints include at least one of a minimum constraint and a maximum constraint, the minimum constraint imposing a minimum number of task subsets that must be included in a workflow, the maximum constraint imposing a maximum number of task subsets that can be included in the workflow. However, Mangan, in the analogous art of constraint analysis within workflow models, teaches this limitation (Mangan, pg. 4, 4.3 Build Constraints, "The build constraints specific to this domain are typically: . . . rules specifying the minimum and maximum student workloads (units taken per semester)."). It would have been obvious to one of ordinary skill in the art to modify Sadiq in view of Ribeiro to include the teaching of Mangan because the claimed invention is merely a combination of old elements, and in the combination each element merely would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable. Furthermore,

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Mangan's teachings provide a more robust analysis that is more effective by being able to handle a greater number of constraint scenarios.

Response to Arguments

10. Applicant's arguments filed 10/9/09 have been fully considered but they are not persuasive.

11. Applicant argues that the cited prior art does not teach *simplifying a specification of the constraints for each constraint corresponding to a constraint type of a plurality of constraint type; for each constraint based on resolving intra-constraint conflicts for each constraint type to provide a minimal specification for each constraint of the constraint type, simplifying the specification of the constraints being based on a redundancy or a transitivity within the constraint type; resolve inter-constraint conflicts between the constraint types*. Applicant's remarks, 10/9/09, pg. 10. In response, Examiner respectfully disagrees. Ribeiro explicitly teaches these limitations at least via its discussion of constraint handling via simplification rules throughout page 4 and Figure 4 of its disclosure, as well as on page 2, 2 Constraint Handling Rules, wherein constraints are rewritten into simpler ones until they are solved, using simplification rules and propagation rules.

12. Applicant argues that new limitations in claims 49–54 are not in the cited prior art. Applicant's remarks, 10/9/09, pg. 10–11. As per claims 50, 52, and 54, a new reference, Mangan, has been brought in to teach the newly recited limitations. As such, with respect to these claims, Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. With respect to claims 49, 51, and 53, Examiner respectfully disagrees with Applicant's contention that the cited prior art does not teach exclusive and inclusive constraints,

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and directs Applicant to page 7 of Ribeiro, 5.2 Security Constraint Handler, Figure 9, which lists logical constraints of both exclusive disjunction and inclusive disjunction, indicated in the Figure by associate symbol notation.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Bing Liu and Joxan Jaffar, "Using Constraints to Model Disjunctions in Rule-Based Reasoning," *Proceedings of the Thirteenth National Conference on Artificial Intelligence (AAAI-96)*, Aug 4-8, 1996, Portland, Oregon, USA, pp. 1248-1255 (online reprint pg. 1-8) (discussing use of inclusive and exclusive disjunctive constraints for solving constraint satisfaction problems).

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN M. PATS whose telephone number is (571)270-1363. The examiner can normally be reached on M-F, 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on 571-272-6737. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Justin M Pats/
Examiner, Art Unit 3623

/Andre Boyce/
Primary Examiner, Art Unit 3623